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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/612,563	07/02/2003	Toshiaki Watanabe	S004-5059	4521

7590 09/29/2004

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EXAMINER

VO, ANH T N

ART UNIT PAPER NUMBER

2861

DATE MAILED: 09/29/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/612,563

Applicant(s)

WATANABE, TOSHIAKI

Examiner

Anh t.n Vo

Art Unit

2861

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-7 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-7 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☒ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date ____.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: ____.

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DETAILED ACTION

Priority

Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

Information Disclosure Statement

The references cited on PTO 1449 have been considered

Specification

The specification has been checked to the extent necessary to determine the presence of all possible minor errors. However, the applicant's cooperation is requested in correcting any errors of which applicant may become aware in the specification.

CLAIM REJECTIONS

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-7 are rejected under 35 USC 103 (a) as being unpatentable over Hirose et al. (US Pat. 6,120,140).

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Hirosawa et al disclose in Figures 1-14(b) an ink jet recording apparatus comprising:

- a plurality of grooves (not shown) each connected to a nozzle aperture (43);
- a common ink chamber (a chamber that is communicated to the nozzles through the grooves) to which each of the grooves is connected;
- ink storing means (41) for storing ink;
- an ink flow path (44) that connects the common ink chamber and the ink storing means (41) to each other;
- a filter (46) that is disposed in a portion of the ink flow path (47), wherein: thin plate shaped spaces are defined in an upstream side (a side that is opposite with element L3 or B direction) and a downstream side (L3) by forming mutually opposing partitions (47) before and after the filter (46) in the flow path (44); in the upstream space of the upstream side, a thin plate shaped ink introduction passage is connected to one end side of the filter in a directional orthogonal to the direction in which the grooves of the filter (46) are arranged in parallel, extending over the direction in which the grooves are arranged in parallel; in the downstream space of the downstream side, a thin plate shaped ink supply passage (L4) for supplying ink to the common ink chamber is connected to the other end side of the filter, extending over the direction in which the grooves are arranged in parallel; one end side (44a) of a tubular communicating passage (L1), of which the other end is connected to the ink storing means (41), is connected to a side opposite to that of the upstream space of the ink introduction passage (L2);
- wherein: the filter (46) is disposed in a vertical direction; the ink introduction passage (L2) is connected to a lower portion side in a vertical direction of the upstream space (B direction); and the ink supply passage (L4) is connected to an upper portion side in a vertical direction (Figure 10);
- wherein: the filter (1) is disposed in a horizontal direction; the upstream space is defined on a lower side in a vertical direction of the filter; and the downstream space is defined on an upper side in a vertical direction of the filter (Figure 3);
- wherein: the dimensions of the ink introduction passage (L2), the ink supply passage (L4), the upstream space (B direction), and the downstream space (L3) in the thickness direction of the thin plate shaped spaces are substantially identical to one another or less than 1.0 mm (Figures 6

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and 9-10); and

- wherein: the ink supply passage is connected to the common ink chamber with one end side, opposite to the other end side that is connected to the downstream space, so as to be inclined downward in the vertical direction by a predetermined amount (Figure 11).

Hirosawa et al. disclose the claimed invention except for “dimensions of the ink introduction passage (L2), the ink supply passage (L4), the upstream space (B direction), and the downstream space (L3) in a thickness direction of the thin plate shaped spaces are each smaller than an inner diameter of the communicating passage (L1)”. It would have been obvious to one having ordinary skill in the art at the time the invention was made to select changes in the dimension of the ink flow passage for the purpose of removing effectively bubbles so that the ink is consistently and stably ejected, since it is a mechanical design expedient for an engineer depending upon a particular environment and the applications in which the ink jet recording apparatus is to be used.

Citation of Pertinent Prior Art

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. The prior art references (US Pat. 5,216,446; US Pat. 5,280,299; US Pat. 5,486,846; US Pat. 5,495,272; US Pat. 5,671,000) cited in the PTO 892 form show an ink jet head which is deemed to be relevant to the present invention. These references should be reviewed.

CONCLUSION

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Examiner Anh Vo. whose telephone number is (571) 272-2262. The examiner can normally be reached on Tuesday to Friday from 8:00 A.M. to 6:00 P.M.

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The fax number of this Group 2861 is (703)872-9306.

A handwritten signature in black ink, consisting of several loops and a long horizontal stroke extending to the right.

ANH T. N. VO
PRIMARY EXAMINER

September 22, 2004